

# The Categorization of Constructions and Their Related Domains

— A Case of Resultative Constructions —\*

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## 0. Introduction

This paper will discuss the cognitive network of resultative constructions in English like (1)–(3) as a special case study.

- (1) a. They broke the vase into pieces.  
b. He sharpened the pencil pointy.
- (2) a. He painted the wall white.  
b. Mary boiled the eggs hard.
- (3) a. John hammered the metal flat.  
b. Joe kicked the dog dead.

The aim of this paper is to explain the way resultative constructions are **categorized** or **networked** in the human mind within the framework of Cognitive Grammar (Langacker 1987a, 1991, 2000).

The characterization of the constructional network in many previous studies is relatively simple and straightforward. In the mainstream of Cognitive Linguistics, Construction Grammar presupposes the independent unit **construction**: “a form-meaning pair” (Goldberg 1995: 4). For example, the constructions in (1)–(3) have their own forms and **constructional** meanings “X CAUSES Y to BECOME Z” in common. On the other hand, some lexical semantic linguists argue that rich verbal semantics can not be

explained in terms of constructions. They try, therefore, to describe much detail syntactic and semantic information in lexicon. It is obvious, however, that much of their description tends to be superfluous.

In this paper, I basically adapt the Cognitive-Grammar perspective that lexicon, morphology, and syntax form a continuum consisting of assemblies of symbolic structures. What I would claim in this paper is that constructional categorization is motivated in the **constructional domains** which I am going to propose.

### 1. The action chain and the resultative constructions

Cognitive Grammar is full of suggestions about linguistic categorization. It holds that event structure reflects the conceptualizer's **construal** on that content. The term "construal" refers to our ability to perceive and portray the same situation in alternate ways. This ability is applied to the interpretation of event structure, in which we tend to come across asymmetrical and energetic interactions among the participants. In this process, energy is transmitted from one participant to another, where the latter in turn transmits energy to the third, and so on indefinitely. Such a model is called the **action chain** developed by Langacker (1987b), as illustrated in Figure 1.

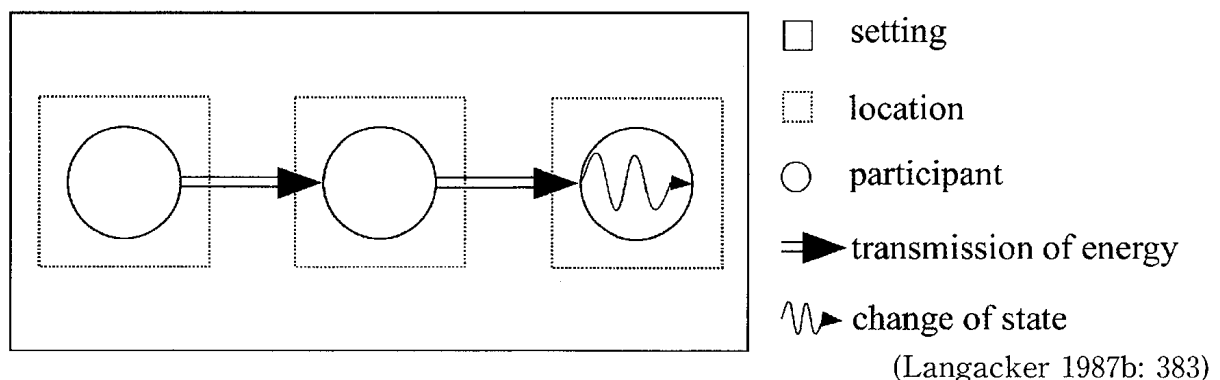


Figure 1: Action chain

Consider, then, a canonical transitive clause that profiles a full action chain, such as “John broke the glass with the hammer”. Its event structure has three main canonical participants within the scope of predication: agent, instrument, and patient (**AG**  $\Rightarrow$  **INSTR**  $\Rightarrow$  **PAT** (the bold style indicates **profiles**: the profiled entity achieves a special degree of focal prominence)). In this canonical example, the agent transmits a certain amount of energy to the instrument and, in its turn, it transmits that energy to the patient. In another example such as “The hammer easily broke the glass”, the energetic interaction between the instrument and the patient are profiled (**AG**  $\Rightarrow$  **INSTR**  $\Rightarrow$  **PAT**). In a further example such as “The glass (easily) broke”, only the patient is profiled (**AG**  $\Rightarrow$  **INSTR**  $\Rightarrow$  **PAT**). In this way, the action chain is schematized from all the canonical constructions in terms of energetic interaction among the related participants.

This action chain analysis is, by its very nature, useful in providing a unified treatment for resultative constructions (1)–(3). The linguistic data (1a) indicates that the agent “they” transmits the energy “breaking” to the patient “the vase”, and the latter becomes the resultative state “into pieces”. This perspective is also applied to other resultative constructions in (1b)–(3b).

It is obvious that the action chain model captures an important facet of clause structures, including resultatives. Here, to make clearer the relation between the action chain and the event structures evoked by the verbs in the resultative constructions (1)–(3), let us observe the linguistic data in (4) and their verbal semantics in (5).

- (4) a. \* He sharpened the pencil, but it did not become pointy. (cf. 1b)  
b. He painted the wall, but it did not become white. (cf. 2a)  
c. Joe kicked the dog, but he did not become dead. (cf. 3a)

- (5) a. sharpen: to make something sharper; to become sharper
- b. paint: to cover a surface or object with paint
- c. kick: to hit somebody or something with your foot

*(Oxford Advanced Learner's Dictionary)*

The first sentence (4a) is used with a “change-of-state verb”. This data suggests that the resultative state is predictable from its verb, and is lexicalized in the lexicon. For example, the event “sharpen” includes the change of state and the end state “sharp”, as demonstrated in (5a). This lexicalization does not give naturalness to the sentence (4a). Yet, while the second sentence (4b) is also used with the same type of verb, I would argue that it does not lexicalize the end state, since, in our example, the event “paint” certainly includes the change of state, but it does not necessarily conclude the end state such as “white”. This resultative state has the potentiality of referring to colors other than white, or to some other state, as manifested in (5b). This open-ended potentiality allows the sentence (4b). Moreover, in the third sentence with a “contact verb” (4c), the change of state and the resultative end state are not lexicalized in the verbal lexicon, and they are not therefore perfectly predictable from the verb, as shown in (5c).

These observations offer the natural solution that these types of verb have their own semantic behaviors, and that the categorization of the above three types of constructions (1)–(3) will therefore be subtly different. It seems obvious, however, that the action chain analysis does not adequately account for the subtle differences; that is, this model does not explain the reason the different types of verb are mapped onto the resultative constructions. A full characterization of event structures will thus require an additional notion.

## 2. The domains and the resultative constructions

### 2.1 An introduction to the cognitive domain

In this section, I will argue that the above-mentioned resultative constructions can be naturally described in terms of domains. Before our main discussion, let me briefly introduce the **cognitive domains** within the framework of Cognitive Grammar. It holds that cognitive domain refers to a coherent area of conceptualization relative to which semantic units may be characterized. A linguistic expression involves one or more cognitive domains as the basis for its meaning out of the set of domains — a **complex matrix**, which is illustrated in Figure 2. This phenomenon is called **domain centrality**.

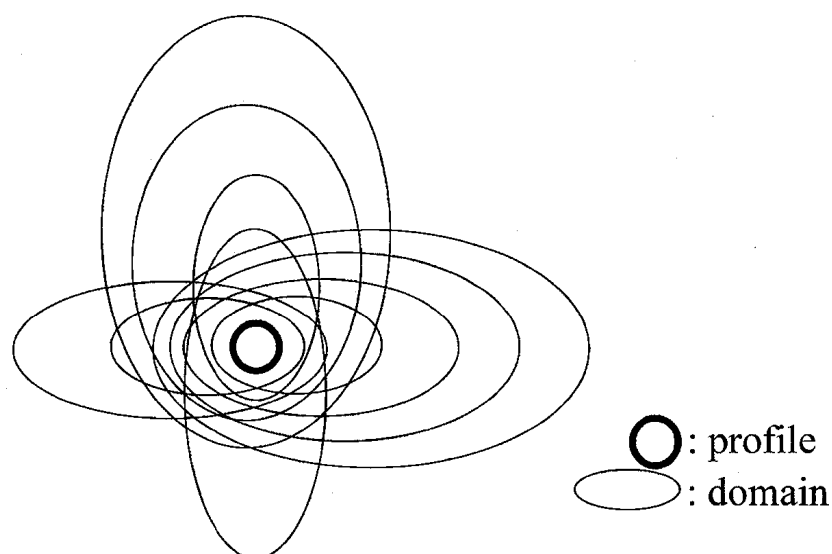


Figure 2: Complex matrix

(Langacker 2000: 2-18)

To make this crucial point clearer, Langacker (ibid.: 2-16) gives the expression *glass* as a good example.

- (6) a. He took another sip from his glass.

- b. This antique glass is quite fragile.
- c. Plastic wine glasses are hard to wash.

(ibid.)

The presupposed domains for *glass* are following: (i) [SPACE] ; (ii) [SHAPE] : roughly that of a cylinder, closed at one end; (iii) [TYPICAL ORIENTAION IN SHAPE] : long dimension aligned along the vertical axis, with the closed end at the bottom; (iv) [FUNCTION<sub>1</sub>] : container for liquid; (v) [FUNCTION<sub>2</sub>] : role in the process of drinking; (vi) [MATERIAL] : usually the substance glass; (vii) [SIZE] : easily held in one hand; (viii) [OTHERS] : domains pertaining to cost, washing, storage, dropping and breaking, position on a table at mealtime, matching sets, method of manufacture, and so on. (6a) raises the canonical construal of *glass* with domains (i)-(vii) all being accessed, while (6b-c) highlight the various domains of less centrality in (viii). In our conceptualization, some domains have more centrality of the relevant domains, whereas others have less centrality and are pushed into the background.

The observations above lead to the idea that the cognitive domains offer a unified treatment for the characterization of words. In what follows, I will apply cognitive domains to syntactic constructions.

## 2.2 The constructional domains and the transitive resultative constructions

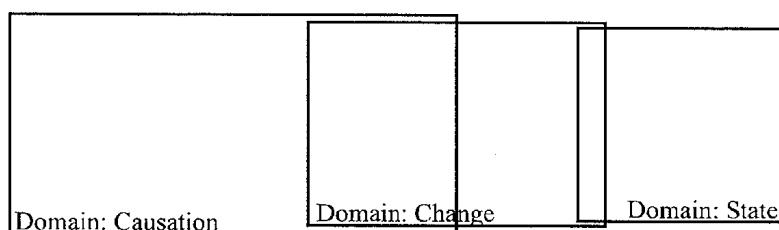
In this section, I characterize typical transitive resultative constructions like (1)-(3) in the above-mentioned framework.

First of all, to characterize the categorization of these constructions properly, I hypothesize the following **constructional domains** and **constructional schema**. The constructional domains which I suggest here are

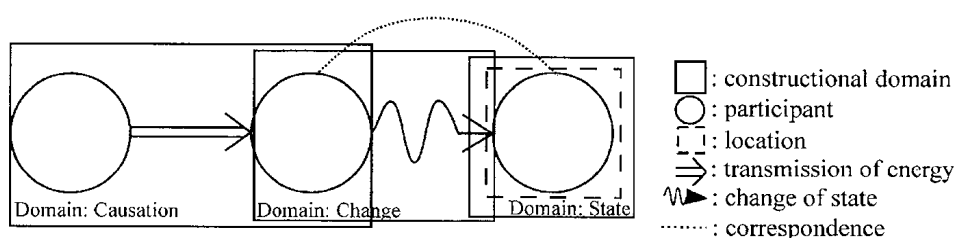
one type of cognitive domains which indicate a coherent area of conceptualization relative to which constructions may be characterized.

### (7) Constructional Domains

- a. Domain Causation (DC): the domain designated for “a participant exerts some force on another participant”
- b. Domain Change (DCh): the domain designated for “the latter participant accepts the force and changes”
- c. Domain: State (DS): the domain designated for “the state in which the latter participant is”



**Figure 3: Complex matrix of resultative constructions**



**Figure 4: Constructional schema of resultative constructions**

The figure 4 indicates the construction schema of resultative constructions, which describes a template for how simpler expressions combine to form a more complex expression. This schema is the unified model of the event structures expressed by the action chain and the constructional domains in Figure 3. This unification gives a natural explanation to the following

cognitive process:

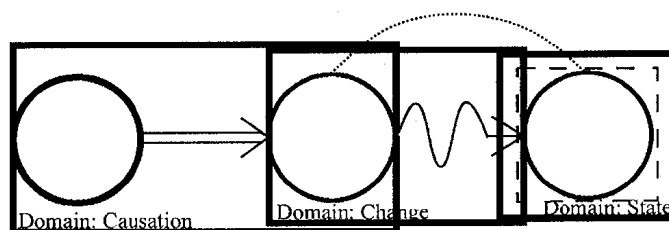
(8) **The cognitive process of resultative constructions**

in the DC, a participant exerts some force on another participant; and in the DCh, the latter participant accepts the force and changes; and then in the DS, the latter is in some state.

The viability of these assumptions can be ensured by the following linguistic observations.

First, I argue that every resultative construction contains a complex matrix which is composed of the DC, the DCh, and the DS, as illustrated in Figure 3. When we encode resultative constructions, we conceptualize centralizes one or more domains out of the matrix.

I also claim that the constructional categorization reflects the way of mapping between the constructional domains and the verbal domains; the above-mentioned different verbal semantics are reflected in their verbal domains.<sup>1</sup> In the first type of transitive resultative constructions like (1), the verbal domains are identically correspondent to the constructional domains; therefore, the three domains are all centralized for constructional categorization without any confliction, as illustrated in Figure 5. In this figure, the profiled entities and centralized domains are represented in the bold styles.



**Figure 5: Transitive resultative constructions**



With respect to our example (1b), the above-observed data (4a) and (5a) show that the event “sharpen” involves the DC, the DCh and the DS in its verbal domain; then, these domains are equally mapped to the constructional domains in the constructional schema. Therefore, I call this mapping process **lexicon-driven categorization**.<sup>2</sup>

The second type of categorization in (2) may be attributable to the same schema on the surface, but it’s the really different mapping process; for example, this type of verb such as “paint” highlights the DC and the DCh in its verbal domains, but does not centralize the DS, as demonstrated in the data (4b) and (5b). Therefore, the centrality of the DS in the constructional domains completes the lack of that in the verbal domains. By virtue of this mapping phenomenon, the second type of construction is categorized as a transitive resultative construction. Therefore, I call this mapping process **construction-driven categorization**.

Finally, the third type of constructions in (3) represents that the verb like “kick” centralizes the DC in its domains, but does not highlight the DCh and the DS; the centrality of the DCh and the DS in the constructional domains make these constructions available in the similar fashion as the second type: the construction-driven categorization.

In brief, the crucial point is that the categorization of these constructions is, as manifested in many previous studies, dependent not only on the energetic interaction among participants, but also on the constructional domains. The primary factor of constructional categorization is what type of constructional domains is prominent as the central status in the mapping process. The constructional categorization contains two ways: one is the lexicon-driven categorization, in which verbal domains are equally mapped to constructional domains; the other is the construction-driven categorization, in which the centrality of constructional domains completes the lack of

that in the verbal domains.

### 2.3 The constructional domains and the resultative constructions with an intransitive verb

In what follows, I develop the categorization of resultative constructions with an intransitive verb in terms of the constructional domains.

Traditionally, intransitive verbs are divided into the two types: unaccusative verbs and unergative verbs. The former type describes non-volitional events like change of location, change of state, and so on, while the latter denotes volitional activities or non-volitional physiological phenomena. Furthermore, Cognitive Grammar suggests that unaccusative verbs indicate the **externally-driven** relation, in which the events are initiated by the external energy of another participant, and that unergative verbs represent the **self-induced** relation, in which the events are provoked by the internal energy of the participant.

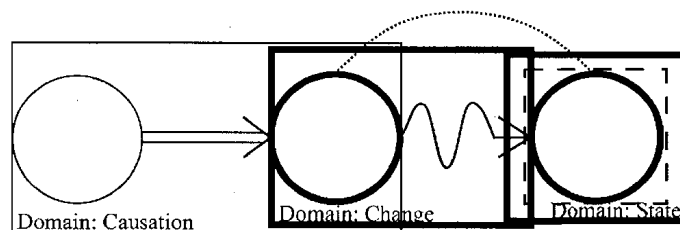
Firstly, to make explicit the categorization of resultative constructions with these verbs, let us observe the following constructions with an unaccusative verb.

- (9) a. The vase broke into pieces.
- b. The pencil sharpened pointy.
- (10) a. The wall painted white. (*BNC*)
- b. The door pushed open.
- (11) The metal hammered flat.

Because the unaccusative verbs indicate the externally-driven relation, only the patient and the resultative phrase are included within the scope of the predication and are encoded. For example, the event “sharpen” in (9b) is

not occurred automatically, rather it is given the natural explanation that someone (an external agent) makes something (a patient) sharper, and then the latter become sharp.

Let us consider the categorization of these constructions. I would offer that this type of constructions is encoded in the reason we highlight the DCh and the DS out of the matrix, as sketched in Figure 6. In this figure, these domains are prominent as the central status.



**Figure 6: Resultative constructions with an unaccusative verb**

However, I would make the further suggestion that the event evoked is necessarily concerned with the event invoked within the DC, regardless of the encoding, because these events are externally-driven events. The categorization of these constructions represents that the conceptualizer picks out the DCh and the DS out of the matrix, and pushes the DC into the background at the conceptual level. As sketched in Figure 6, the cognitive structure of these constructions is mainly based on that of transitive resultative constructions. The difference between them is the degree of centrality of the DC, and the profile status of the subject participant and the force of causation.

Furthermore, strictly speaking, each categorization in (9)–(11) is different subtly as well as that in (1)–(3), because their verbs have their own semantics, as demonstrated in (4) and (5). Here, let me skip the more elaborate explanation, because the mapping pattern of the categorization in

(9) corresponds to that in (1), (10) to (2), and (11) to (3).

The next observation concerns the resultative constructions with an unergative verb. Let us consider the following constructions.

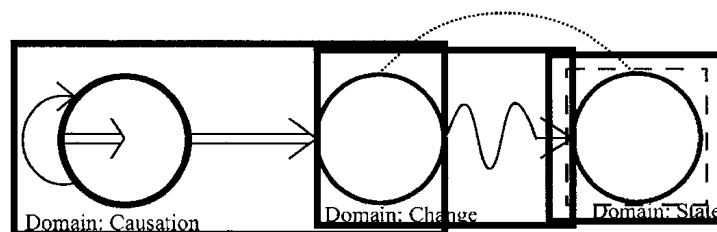
- (12) a. She danced herself tired.  
       b. He talked himself hoarse.  
       c. The dog barked the baby awake.
- (13) a. dance: to move your body to the sound and rhythm of music  
       b. bark: when a dog barks, it makes a short loud sound

*(Oxford Advanced Learner's Dictionary)*

While all the verbs in (12) are intransitive and their events are self-induced with some human volition, these constructions are similar to transitive resultative constructions like (1)-(3) on their surface; they have the postverbal NPs as their objecthood, and the resultative phrases follow after these NPs.<sup>3</sup> In fact, these constructions are construed as transitive. This is because I call this type of constructions transitive construction with an unergative verb.

Let us examine the categorization of these constructions. Considering the verbal semantics in (13), these verbs in (12) do not lexicalize any of the DC, the DCh or the DS in their verbal domains, respectively. Therefore, the centrality of the constructional domains completes the lankness of these verbal domains: construction-driven categorization. For example, in the event “dance”, which is the human activity with some volition, the subject does not transmit some energy to another participant intrinsically; however, the constructional domains as the central status make this event available for transitive resultative constructions, as demonstrated in Figure 7. (Note that the double arrow within the left participant indicates the internal

energy force; this shows that these events are self-induced, and that the round arrow in the left side of the left participant indicates the participant's volition.)



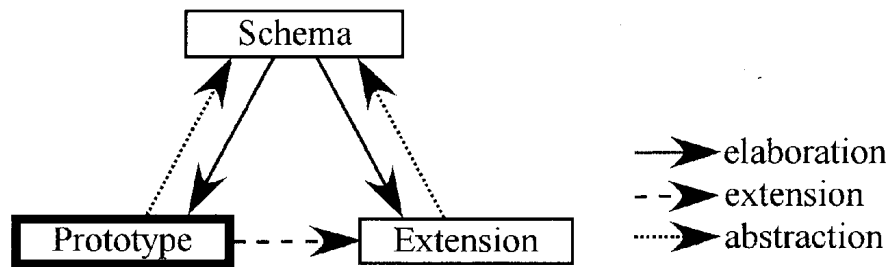
**Figure 7: Transitive resultative constructions with an unergative verb**

These observations lead to a natural idea that the DC, the DCh, and the DS as the central status in the constructional domains are essential for categorization of these types.

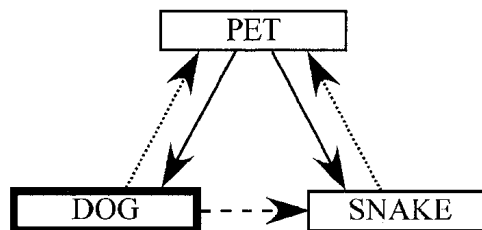
In this section, I have argued that the unified characterization by the constructional domains and the action chain makes explicit the nature of each construction.

### **3. The cognitive network of resultative constructions**

Last but not least, linguistic conceptions are **categorized** in the human mind. Categorization is divided into the two types: the categorization by **prototype** and that by **schema**. A prototype is a typical instance of a category, whereas a schema is an abstract characterization which is fully compatible with all the members of the category, as shown in Figure 8. The two models of categorization are inherently related and describable in a unified phenomenon.

(Langacker 1988: 140, modified by Tsushima)<sup>4</sup>**Figure 8: Categorization**

Let us consider the category PET, as illustrated in Figure 9. Assume that DOG is prototype and salient in this category.

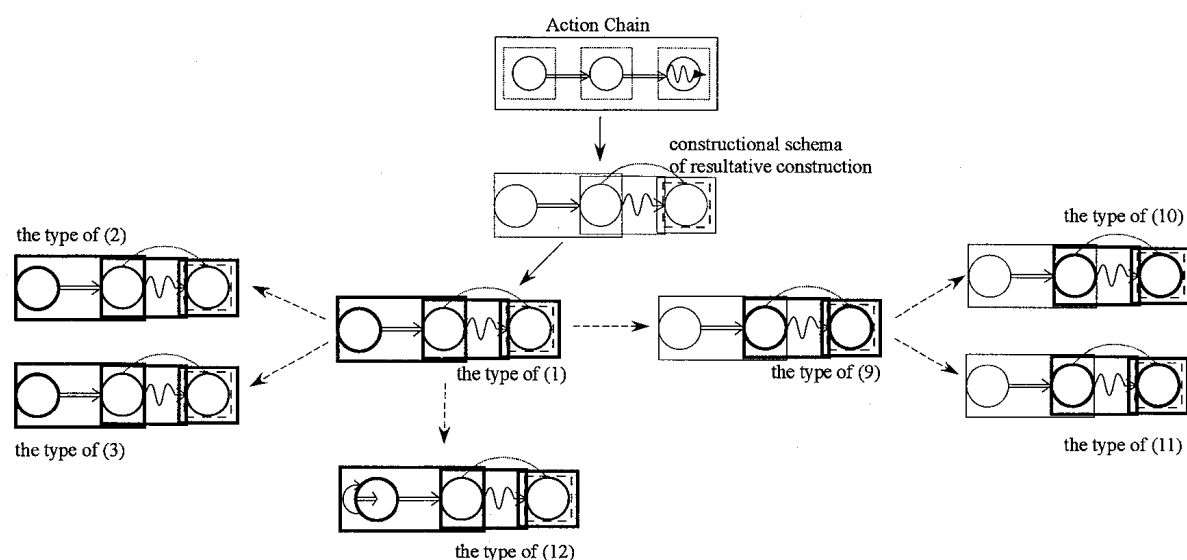
**Figure 9: Categorization of PET**

Generally people keep dogs as pets in our daily life. Dogs are easy to keep in their sizes and attached. On the other hand, snakes are fierce and animals in the wild. Image, however, that with changing lifestyles, people congregate less and less frequently for these concepts. SNAKE acquires increased salience with our changing lifestyle; it becomes established as a pet status as well as DOG. In this case, the category SNAKE is extended from the prototype DOG. The similarities between them reflect the schema: pet is attached and easy to keep. Such categorization is important for accounting for the mechanism of human categorization.

These crucial notions are applicable to the linguistic analysis of syntactic constructions. Let us consider the network of resultative constructions, as diagramed in Figure 10. Firstly, my model starts by setting the action

chain at the initial point. The constructional schema of resultative constructions is elaborated from the action chain.

I am suggesting that the prototype of this category is transitive resultative constructions like (1). This characterization is fully tenable by the notion that the prototypical canonical event invokes the energetic interaction of an agent and a patient (cf. Langacker 1991). This type of categorization is elaboration from the constructional schema of resultative constructions in the reason the verbal domains equally maps onto the constructional domains.



**Figure 10: The network of resultative constructions**

Next, the categorization of (2) and (3) are extension from the prototype, because the same constructional domains are centralized; however, they are different from the prototype in the process of mapping, as demonstrated in the preceding section.

Thirdly, the categorization of (9) is extension from the prototype, because the centrality of domains is different from it, as demonstrated in the previous section.

Furthermore, the constructions (10) and (11) are extended from the constructions in (9), because the same domains are centralized on their surface, but they are really different mapping process.

In addition, the categorization of (12) is categorized by extension from the prototype in (1), though the mapping process of (12) is different from it. However, these constructions are construed as transitive like the prototype. This is because the centrality of domains in them is compatible with to that in the prototype. As they acquire increased salience with our daily commonalities, they will become established as a transitive status regardless of their having intransitive verbs. This assumption gives a natural explanation to the categorization of this type of construction.

To sum up, the crucial point in the realm of constructional categorization is that each construction is categorized and motivated in the way of centrality of domains through their mapping process.

#### **4. Conclusion**

This paper has attempted to offer a unified treatment for the categorization of resultative constructions. It is self-evident that the constructional categorization is motivated in terms of constructional domains. I hope that the notion of these domains will be applied to other constructions in another research project.

#### **Notes**

- \* This paper is a condensed and widely modified version of part of my master's thesis (Tsushima 2005a) submitted to Sapporo University. I owe a debt to gratitude William Jones for the style of this paper. All remaining errors are of course my own.

<sup>1</sup> Tsushima (2005b) suggests that the categorization of constructions is



dependent on the mapping between the verbal domains and the constructional domains.

<sup>2</sup> The idea of “mapping” is suggested by Fauconnier (1997) and Fauconnier and Turner (2002). The mapping also corresponds to Langacker’s “correspondence” and “conceptual overlaps” in the framework of Cognitive Grammar (Langacker 1987a, 1991).

<sup>3</sup> Strictly speaking, the cognitive structure of the type of constructions in (12a-b) is different from that of (12c), because the class of their objects is different: a “fake reflexive object” in the former type and a “fake nominal object” in the latter type. More elaborate analysis is developed in terms of “transitivity” in Tsushima (2005a).

<sup>4</sup> Langacker’s (1988) original model lacks the arrow of abstraction. The motivation of abstraction is suggested by Yamanashi (2000).

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### **Corpus and Dictionaries**

*British National Corpus* (BNC).

*Oxford Advanced Learner's Dictionary* (OALD).